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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,563	01/07/2005	Langen Li	05-10107-LI	5264
26357 7590 12/07/2007 ROBERT M. HUNTER PLLC P.O. BOX 2709 KAMUELA, HI 96743			EXAMINER MCDONOUGH, JAMES E	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			12/07/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/520,563

**Applicant(s)**

LI, LANGEN

**Examiner**

James E. McDonough

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 3-6 and 8-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7 and 16-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's election without traverse of Group I, claims 1, 2, 7, and 16-23 in the reply filed on 10/15/2007 is acknowledged. Applicants amendment to claim 5 does not overcome the restriction requirement, therefore the restriction requirement is made final.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification as originally filed for having a carbon potential that is about 0.15 to about 0.25 percent units higher than would be used in the absence of said catalyst. The section of specification spanning pages 8 and 9, does not describe the carbon potential as unit percentages, as no units are given and it is not stated as a percentage.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 7, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bucker et al. (USP 6,007,763).

Regarding claims 1 and 2

Bucker teaches method of preparing a heat-treatment atmosphere by mixing oxygen (co-catalyst) with a second gas forming a combination and introducing this to the catalytic reactor (abstract).

Regarding claims 7 and 21

Bucker teaches that heat-treatment equipment contains a catalyst based on a metal such as nickel (column 3, lines 39-42).

Claims 1, 2, 7, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsurumi et al. (USP 4,954,474).

Tsurumi teaches heat treating metals in an atmosphere using catalyst (column 3, line 26 to column 8 line 34).

Tsurumi teaches treating the catalyst with nickel nitrate (co-catalyst) (column 5, lines 15-25).

Tsurumi teaches that the catalyst mixture can be mixed with tetrafluoroethylene (column 6, lines 28-35).

Tsurumi teaches using these catalyst compositions and heating (sintering) (column 6, lines 32-35).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 16-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsurumi et al. (USP 4,954,474) as applied to claims 1, 2, 7, and 21 above.

Tsurumi teaches a catalyst composition that has all the requisite components, but is silent as to the concentration of these in the heat treatment atmosphere, however the skilled artisan would appreciate that these components have very low vapor pressures that would serve to limit their percent of the atmosphere composition, and

would further appreciate that fact the percent composition of the atmosphere these components make up will be dependent upon the temperature present as the higher the temperature the higher the vapor pressure and larger percent of the atmosphere the components will take up and the skilled artisan would be expected to be able to determine the actual percent of the heat treatment atmosphere these components make up, and be able to adjust these concentrations to achieve desired results in a predictable manner.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsurumi et al. (USP 4,954,474) as applied to claims 1, 2, 7, 16-19, 21, and 22 above, and further in view of Hayashi et al. (US 2004/0138409).

Although, Tsurumi does not explicitly teach the use of cerium or lanthanum compounds, Tsurumi does teach the use of nickel nitrate, however, because Hayashi teaches that lanthanum and nickel nitrates are functional equivalents (paragraph 0057), it would have been prima facie obvious to someone of ordinary skill in the art at the time to replace nickel nitrate with lanthanum nitrate or to use a combination of these to achieve desired results in a predictable manner. With respect to the concentration of this components the skilled artisan would be expected to be able to determine an effective amount. However, examiner would like to note that it appears highly unlikely that lanthanum nitrate would make up 3 % of a heat treatment atmosphere given it's low vapor pressure.

Application/Control Number:  
10/520,563  
Art Unit: 1793

Page 6

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James E. McDonough whose telephone number is (571)272-6398. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JEM 12/2/2007



**J.A. LORENGO**  
**SUPERVISORY PATENT EXAMINER**